

ST

Notice of Allowability

Application No.

10/721,942

Examiner

Lawrence B. Williams

Applicant(s)

JOSSELYN ET AL.

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 25 November 2003.
2. ☒ The allowed claim(s) is/are 1-22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The instant application discloses a method and apparatus for determining a phase between a first signal and second signal. A search of prior art records has failed to teach or suggest alone or in combination:

“a method of determining a phase between a first signal and a second signal, the first signal and the second signal corresponding to signal transmissions between a first device and a second device, the second device periodically moving along a translational axis with respect to the first device in a first direction or a second direction, the method comprising the steps of: assigning a positive or negative value to each of a plurality of positive and negative zero crossings of the first signal, a positive zero crossing being assigned a positive value if the second signal is negative or a negative value if the second signal is positive, and a negative zero crossing being assigned a positive value if the second signal is positive or a negative value if the second signal is negative; counting a numerator for a predetermined interval, the numerator being counted in a positive direction if the second device is moving in the first direction and the value assigned to a corresponding zero crossing of the first signal is negative or if the second device is moving in the second direction and the value assigned to the corresponding zero crossing is positive, the numerator being counted in a negative direction if the second device is moving in the first direction and the value assigned to the corresponding zero crossing is positive or if the second device is moving in the second direction and the value assigned to the corresponding zero crossing is negative; counting a denominator for the predetermined interval, the denominator being counted in a positive direction; and calculating a raw phase between the first signal and the

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second signal by dividing a value of the numerator by a corresponding value of the denominator after the predetermined interval” as disclosed in claim 1.

Nor does the prior art teach:

“ a digital phase detector for determining a phase between a first signal and a second signal, the first signal and the second signal corresponding to signal transmissions between a first device and a second device, the second device periodically moving along a translational axis with respect to the first device in a first direction or a second direction, said digital phase detector comprising: a polarity determiner for assigning a positive or negative value to each of a plurality of positive and negative zero crossings of the first signal, said polarity determiner assigning a positive zero crossing a positive value if the second signal is negative or a negative value if the second signal is positive, said polarity determiner assigning a negative zero crossing a positive value if the second signal is positive or a negative value if the second signal is negative; a numerator counter for counting for a predetermined interval, the numerator counter counting in a positive direction if the second device is moving in the first direction and the value assigned to a corresponding zero crossing of the first signal is negative or if the second device is moving in the second direction and the value assigned to the corresponding zero crossing is positive, the numerator counter counting in a negative direction if the second device is moving in the first direction and the value assigned to the corresponding zero crossing is positive or if the second device is moving in the second direction and the value assigned to the corresponding zero crossing is negative; a denominator counter for counting in a positive direction for the predetermined interval; and a raw phase calculator for calculating a raw phase between the

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first signal and the second signal by dividing a value of the numerator counter by a corresponding value of the denominator counter after the predetermined interval” as disclosed in claim 12.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

DRAWINGS

2. The drawings submitted 12 April 2004 are accepted by the examiner.

CONCLUSION

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Shirley discloses in US 2004/0105100 A1 Apparatus And Methods For Surface Contour Measurements.

b.) Olgaard discloses in US 6,236,278 B1 Apparatus And Method For A Fast Locking Phase Locked Loop.

c.) Park discloses in US Patent 5,572,550 Decision Directed Carrier Recovery Circuit Using Phase Error Detector.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams



lbw

January 9, 2007



EMMANUEL BAYARD
PRIMARY EXAMINER